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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,119	05/11/2001	Miroslav Trajkovic	US 010240	7390

24737 7590 11/21/2003

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
AMINI, JAVID A	

ART UNIT	PAPER NUMBER
2672	7

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/854,119	TRAJKOVIC, MIROSLAV	
	Examiner	Art Unit	
	Javid A Amini	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et. al. with US patent number 5,848,121 and further in view of Frazier et al. (hereinafter referred as a Frazier).

1. Claim 1.

Gupta in col. 2, lines 23-30 teaches the step of "A method of aligning a first image (as a mask image) to a second image (as a opacified image), comprising:" Gupta in col. 1, lines 58-67 teaches the step of "determining a first alignment approximation, based on distances (see Gupta in col. 4, lines 41-46) between one or more points in the first image and the second image, Gupta in Fig. 2 step 56 illustrates starting with lowest resolution image that teaches the step of "with the first and second images at a first resolution, see Gupta in Fig. 2, steps 58 and 60 that teaches the step of "aligning the second image to the first image, based on the first alignment approximation, to form an initially aligned second image, determining a second alignment approximation, based on distances between one or more points in the first image and the

initially aligned second image, Gupta in col. 3, lines 53-62 teaches the step of "with the first and second images at a second resolution different from the first resolution", See Gupta in Fig. 2 steps 60 and 62 for the following step "aligning the second image to the first image, based on a combination of the first and second alignment approximation", but Gupta does not explicitly specify a combination of the first and second alignment. However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by helping to distinguish between similar characters (such as between the characters `B`and `8`). The advantages of this modification are less cost and save more storage space.

2. Claim 2.

Gupta in col. 2, lines 31-46 teaches the step of "The method of claim 1, wherein aligning the second image to the first image based on the combination of the first and second alignment approximations is effected by: aligning the initially aligned second image, which is based on the first alignment approximation, to the first image, based on the second alignment approximation", but Gupta does not explicitly specify a combination of the first and second alignment. However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by helping to distinguish between similar characters (such as between the characters `B`and `8`). The advantages of this modification are less cost and save more storage space.

3. Claim 3.

Gupta in Fig. 2 teaches the step of starting with lowest resolution, and this considers as a first resolution. "determining the first alignment approximation is based on the first resolution being a low-resolution representation of the first and second images, Gupta in Fig. 2 step 58 illustrates that matches interesting points in mask image (first image) with corresponding points in opacified image (second image),"determining the second alignment approximation is based on the second resolution being a higher-resolution representation of the first and second images".

4. Claim 4.

Gupta in col. 2, lines 31-46 teaches the step of "The method of claim 1, wherein determining at least one of the first alignment and second alignment approximations includes applying the RANSAC algorithm", by cross-correlating the sample data between images. The step of RANSAC algorithms is well known in the art, (the structure of the RANSAC algorithm is simple but powerful. Repeatedly, subsets are randomly selected from the input data and model parameters fitting the sample are computed. The size of the random samples is the smallest sufficient for determining model parameters.). However applicant fails to illustrate the calculations, variables and interpretation of data in detail.

5. Claim 5.

Gupta in col. 3, lines 63-67, teaches the step of "The method of claim 1, wherein determining the first alignment approximation includes an approximation of at least one of a rotation component and a translation component in an image space of the first and second images". However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by helping to distinguish between similar characters (such as between the characters `B`and `8`).

The advantages of this modification are less cost and save more storage space. Claim 6. "The method of claim 5, wherein determining the second alignment approximation includes an approximation of components of a 3x3 homographic matrix", Gupta in col. 4, lines 25-30 teaches a 2x2 matrix. Since the components of a matrix (2x2, 3x3, 4x4,....XxX) are well known in the art, it does not matter as claim language. Applicant fails to represent the data value of a 3x3 matrix.

6. Claim 7.

See rejection of claim 6, "The method of claim 1, wherein determining the second alignment approximation includes an approximation of components of a 3x3 homographic matrix".

7. Claim 8.

Gupta in col. 3, lines 44-51 teaches the step of "The method of claim 1, wherein determining at least one of the first and second alignment approximations includes identifying corners in the first and second images based on a determination of Minimum Intensity Changes at the corners", but does not explicitly specify corners in the first and second images. However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by

helping to distinguish between similar characters (such as between the characters `B`and `8`). The advantages of this modification are less cost and save more storage space.

8. Claim 9.

Gupta in col. 2, lines 23-30 teaches the step of "A method of tracking an object based on a first image and a second image, comprising: Gupta in col. 1, lines 58-67 teaches the step of "aligning the first and second images to form a set of aligned images, and detecting motion by comparing the set of aligned images, wherein aligning the first and second images includes: determining a first alignment approximation, based on distances (see Gupta in col. 4, lines 41-46) between one or more points in the first image and the second image, Gupta in Fig. 2 step 56 illustrates starting with lowest resolution image that teaches the step of "with the first and second images at a first resolution, aligning the second image to the first image, based on the first alignment approximation, to form an initially aligned second image, determining a second alignment approximation, based on distances between one or more points in the first image and the initially aligned second image, Gupta in col. 3, lines 53-62 teaches the step of "with the first and second images at a second resolution different from the first resolution, See Gupta in Fig. 2 steps 60 and 62 for the following step "aligning the second image to the first image, based on a combination of the first and second alignment approximations". But Gupta does not explicitly specify a combination of the first and second alignment. However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by

helping to distinguish between similar characters (such as between the characters `B`and `8`). The advantages of this modification are less cost and save more storage space.

9. Claim 10.

Gupta in col. 2, lines 31-46 teaches the step of "The method of claim 9, wherein determining the first alignment approximation is based on a low-resolution representation of the first and second images, and determining the second alignment approximation is based on a higher-resolution representation of the first and second images".

10. Claim 11.

"The method of claim 9, further including identifying the object in the set of aligned images based on color matching", Gupta teaches colors that are between the low and high resolutions image, the colors than can be seen usually in X-ray images are gray, black, white.

11. Claim 12.

"The method of claim 9, further including determining a location of the object in each image of the set of aligned images, and determining a movement of the object by comparing the location of the object in each image", Gupta does not explicitly specify a movement of the object, However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by helping to distinguish between similar characters (such as between the characters `B`and `8`). The advantages of this modification are less cost and save more storage space.

12. Claim 13.

Gupta in col. 1, lines 31-37 teaches the step of "A motion detecting system comprising: Gupta in col. 2, lines 59-64 teaches the step of "a processor that is configured to: Gupta in col. 1, lines 58-67 teaches the step of "align a first image and a second image, to form a set of aligned images, by: determining a first alignment approximation, based on distances (see Gupta in col. 4, lines 41-46) between one or more points in the first image and the second image, aligning the second image to the first image, based on the first alignment approximation, to form an initially aligned second image, Gupta in Fig. 2 step 56 illustrates "determining a second alignment approximation, based on distances between one or more points in the first image and the initially aligned second image, Gupta in col. 3, lines 53-62 teaches the step of "aligning the second image to the first image, based on a combination of the first and second alignment approximations; See Gupta in Fig. 2 steps 60 and 62 for the following step "compare the set of aligned images to identify motion of objects within the first and second images". But Gupta does not explicitly specify a combination of the first and second alignment. However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by helping to distinguish between similar characters (such as between the characters `B`and `8`). The advantages of this modification are less cost and save more storage space.

13. Claim 14.

Gupta in Fig. 2 step 56 illustrates starting with lowest resolution image that teaches the step of " "The motion detecting system of claim 13, wherein the processor is configured to: determine the

first alignment approximation by processing a low-resolution representation of at least one of the first and second images, and determine the second alignment approximation by processing a higher-resolution representation of the first and second images".

14. Claim 15.

Gupta in col. 1, lines 39-48 teaches the step of "The motion detecting system of claim 13, further including one or more cameras for producing the first and second images".

15. Claim 16.

The step of "The motion detecting system of claim 13, further including a memory for storing a representation of a target image, and wherein the processor is further configured to identify a target within the set of aligned images, based on the representation of the target image", is obvious, because the system must have a memory for storing a representation of a target image.

16. Claim 17.

"The motion detecting system of claim 16, wherein the representation of the target image is a characterization based on color content of the target image", Gupta teaches colors that are between the low and high resolutions image, the colors than can be seen usuallyin X-ray images are gray, black, white.

17. Claim 18.

"The motion detecting system of claim 13, further including determining a location of an object in each image of the set of aligned images, and determining a movement of the object by comparing the location of the object in each image", Gupta does not explicitly specify a movement of the object, However, Frazier et al. in Figs. 4b and 4c illustrates a combination of the first and second alignment applying a Laplacian operator.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Frazier et al. into Gupta in order to improve performance by helping to distinguish between similar characters (such as between the characters `B`and `8`). The advantages of this modification are less cost and save more storage space.

18. Claim 19.

Gupta in col. 3, lines 63-67, teaches the step of "The motion detecting system of claim 13, wherein determining the first alignment approximation includes an approximation of at least one of a rotation component and a translation component".

19. Claim 20.

"The motion detecting system of claim 19, wherein determining the second alignment approximation includes an approximation of components of a 3x3 homographic matrix", Gupta in col. 4, lines 25-30 teaches a 2x2 matrix. Since the components of a matrix (2x2, 3x3, 4x4,....XxX) are well known in the art, it does not matter as claim language. Applicant fails to represent the data value of a 3x3 matrix.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 15, the phrase "or " renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by "or "), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.05(d).

Claim 15. The motion detecting system of claim 13, further including one or more cameras for producing the first and second images.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A Amini whose telephone number is 703-605-4248. The examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

Javid A Amini
Examiner
Art Unit 2672

Javid Amini

JEFFERY BRIER
PRIMARY EXAMINER